

mREST: Flexible Open Interface Standard for Test and Launch Operations, Phase I

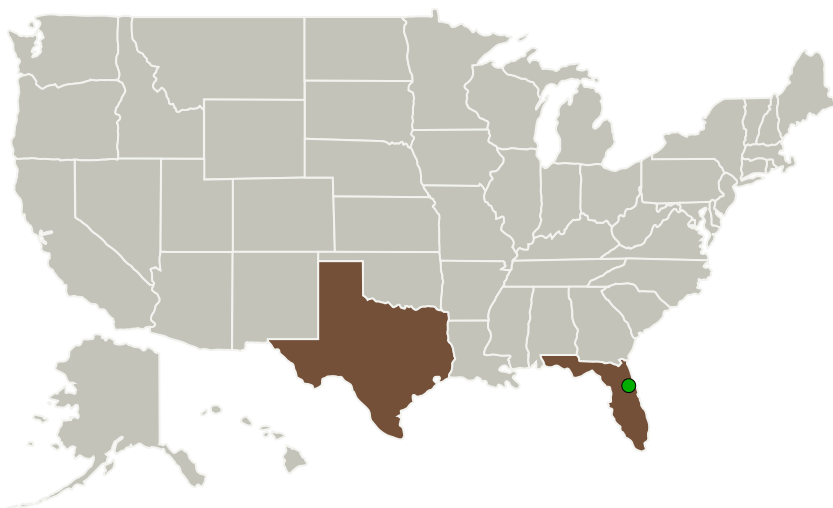
Completed Technology Project (2016 - 2016)



Project Introduction

Spaceflight systems must pass through a complex set of testing and processing before being cleared for launch. A significant portion of the pre-launch processing involves integration with other flight systems, general ground support equipment, and test equipment. The process of interfacing this equipment has historically been a source of numerous delays and unplanned work prior to launch. The proliferation of different interface types, designs, and manufacturers only serves to increase the difficulties associated with pre-launch integration and testing. The development and adoption of improved, standardized interfaces holds the potential of reducing the cost and complexity of the testing and launch processing processes and could provide eventual benefits to autonomous servicing in future space missions. In-space and surface servicing of multiple types of spacecraft becomes more feasible if a common interface approach can be developed and widely adopted. In 2012, METECS developed the mREST Architecture and Interface Specification and began developing software prototypes that could be used to evaluate the effectiveness of the standard for the automation of testing in flight laboratories at the NASA/Johnson Space Center. This specification and the associated software became collectively known simply as "mREST". The proposed innovation is to expand on the mREST foundational work to design an interface standard that can be utilized to solve the issues associated with test and launch operations. This will be accomplished by first doing research into the specific issues that typically arise during the pre-launch process and identifying areas where the existing mREST specification should be expanded and/or refined.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
METECS	Lead Organization	Industry	Houston, Texas
● Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Primary U.S. Work Locations	
Florida	Texas

Project Transitions

June 2016: Project Start

December 2016: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139561>)

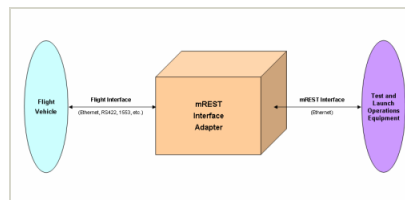
Images



Briefing Chart Image

mREST: Flexible Open Interface Standard for Test and Launch Operations, Phase I

(<https://techport.nasa.gov/image/133203>)



Final Summary Chart Image

mREST: Flexible Open Interface Standard for Test and Launch Operations, Phase I Project Image (<https://techport.nasa.gov/image/128374>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

METECS

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

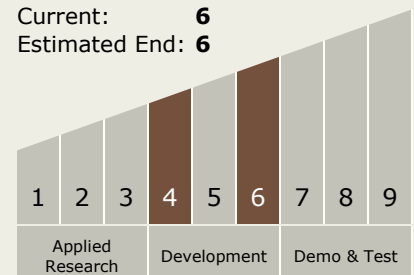
Carlos Torrez

Principal Investigator:

Pat McCartney

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
 - └ TX13.4 Mission Success Technologies
 - └ TX13.4.4 Autonomous, Real-Time Command and Control

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System